REMARKS

The Examiner has sought various degrees of clarification in the Specification, Drawings, and Claims. These Amendments and Responses included herein are intended to be a good faith attempt to address each of the issues raised by the Examiner. The Examiner sought clarification in the Specification, Drawings, rejected the claims under 35 USC 112, and under 35 USC 103.

A. Specification

The Examiner objected to the specification under 37 CFR 1.71 as being ambiguous and incomprehensible because the word, "frame" is used across the specification without any distinction between "glass frame" and "image frame" or any other frame. The Examiner required that the Applicant submit an amendment which clarifies the disclosure by using the word, "glass frame" when "frame" is used to mean "glass frame," and identify what is meant by frame when "frame" does not mean "glass frame."

The Applicant submitted replacement sections and paragraphs to the Specification which clarifies the disclosure by using the phrase "eyeglass frame" when "frame" is used to mean "glass frame." The use of the phrase "eyeglass frame" was not intended to be limiting, but was provided to further clarify the term "glass frame" that was identified by the Examiner.

Additionally, the replacement sections clearly identify when an "image frame" is used in the Specification. The term "image frame" is well-known in the art and is intended to be one image as part of a sequence. For clarification purposes the term has

been replaced the word "image." Support for this use of the term is in Y. Ma, S. Soatto, J. Kosecka S. Sastry, "An Invitation to 3-D Vision", Springer Verlag, 2003 (Chaper 11).

The term "reference frame" is defined in the Applicant's Specification at pages 9 to 10 which states that the reference frame is determined by the position of two points, one being the origin of the reference frame, and the other being the unit along one of the two axes (x-axis or y-axis). The use of term "reference frame" is well known to those of ordinary skill in the art.

B. Drawings

The Examiner objected to the Fig. 7 of the drawings under 37 CFR 1.84(h)(5) because Figure 7 show(s) different use of "frame" in the same view. The Examiner stated that it is not clear whether the "frame" used in all of the steps of Fig. 7 are the same or different from "glass frame" used in step 228. The Examiner required the submission of corrected drawing sheets to avoid abandonment of the application.

In response to the Examiner's objection to Fig. 7 of the drawings and requirement for corrected drawing sheets, Applicant submitted the attached Replacement Sheet for Fig. 7 of the drawings. The Replacement Sheet clearly shows that the word "frame" was intended to refer to the phrase "glass frame."

C. Rejection of Claims Under 35 USC 112

The Examiner rejected Claims 1-32 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In making this rejection, the Examiner quoted the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The Examiner made this objection under the second paragraph of 35 U.S.C. 112 because Claim 1 recites, "the selected frame" in line 12, which implies that a frame selection has been made, however, there is no step of frame selection recited in the claim. Responsive to this objection, applicant has amended Claim 1 to provide the appropriate antecedent basis and clarification by amending the phrase to read "a selected eyeglass frame." The Examiner's reference to "no step of frame selection" was improper as described in further detail below.

Additionally, the Examiner requested that the applicant use the words, "glass frame" when the word "frame" is meant to refer to a "glass frame" and to more clearly identify the other references to "frame." Responsive to this objection, Claims 1, 2, 12, 13, 14, 20, 22, 23, 29, 31 and 32 have been amended to use the phrase "eyeglass frame."

The Examiner also rejected Claim 16 under 35 U.S.C. 112, stating that Claim 16 recites the limitation, "the shape of the lens" in line 5, but the Examiner states there is insufficient antecedent basis for this limitation to the claim. Appropriate correction was made by Applicant such that antecedent basis was provided.

The Examiner rejected Claim 20 under 35 U.S.C. 112, stating that Claim 20 recites the limitation, "the shape" in line 3 because there is insufficient antecedent basis for this limitation in the claim. The Applicant has corrected this informality by referencing "the shape of eyeglasses" which is recited in the preamble of independent claim 1.

The Examiner rejects Claim 29 under 35 U.S.C. 112, stating that Claim 29 recites, "from frame to frame" and "reference frame" in line 4, but that it is not clear whether

"frame" in lines 3 and 4 means a "glass frame" or other type of "frame." Responsive to this objection, Claim 29 has been amended to indicate that "from frame to frame" means, "from image frame to image frame." The definition of image frame has been described above.

D. Rejection of Claims Under 35 U.S.C. 103

Regarding Claims 1, 4-9, 22, 24-25 and 27, the Examiner rejected these claims as being unpatentable over the combination of Gao et al., U.S. Patent No. 6,231,188 (hereinafter "Gao '188") and Fay, U.S. Patent No. 5,983,201 (hereinafter "Fay '201").

Regarding independent amended claim 1, the Examiner states that Gao '188 discloses a method for selecting and modifying the shape of eyeglasses utilizing a system, said method comprising several steps, and the Examiner notes that Gao '188 does not explicitly disclose the step of, "displaying to the user a plurality of styles of glass-frames available through the system." The Examiner goes on to state that Fay '201 discloses a system and method of using a personal computer (PC) to examine how the customer would appear wearing different eyeglass frames fitted electronically to the customer (col. 2, ll. 50-56), where the customer interface displays images of the eyeglass frames (col. 6, ll. 20-12). The Examiner further states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teachings of Fay '201 to modify Gao '188 method by displaying to the user the different styles of glass frames available through the system in order to allow the customer to view the different glass frames available to select a frame based on his/her preference and lifestyle.

Although the Examiner has provided a thoughtful analysis, the Applicant respectfully submits that the Examiner has not fully understood the claimed subject

matter. To better clarify the claimed invention, the Applicant has modified independent claim 1. The first new element added to the independent claim is the "generating a model of the person's face with the received image". Support for this element is provided in page 9 through page 12 where two dimensional and three dimensional models are described. The next element that is clarified is the determining of the appropriate size for a selected eyeglass frame, which is generated by **combining the user style selection and the model of the person's face.** Support for this element is provided *inter alia* in Page 12, line 21 – 31. Thus, the amended independent claim 1 includes two limitations that relate to **determining the appropriate size for the selected eyeglass frame**.

Additionally, the independent claim 1 has been modified to include the limitation of **automatically** determining an appropriate size. Support for this element is provided *inter alia* at Page 7 and 14 of the Specification. The Applicant teaches the system automatically suggesting a shape, based on the users' facial features as determined in the model of the person's face. There is no mention of the system generating a shape other than that pre-set by the glass frame manufaturer in Gao '188 or Fay '201.

Furthermore, the independent claim 1 has been modified to include the limitation of **permitting the user to interactively modify the selected eyeglass frame.** Support for this element is provided throughout the body of the Specification including but not limited to language in the Summary of the Invention in pages 2-4 of the patent application. In the Specification, the Applicant teaches a method where the system enables the user to interactively modify the shape of the eyeglass frames. This can be done by the user directly changing the geometry or by acting on the desired perceptual characteristic. There is no teaching in Gao '188 or Fay '201 that concerns the interactive modification of shape.

In summary, the claimed subject matter can be divided into the five parts. The first part is directed to having a system generate a model of a person's face. The second part is directed to having a user select a "style" for an eyeglass frame in which the style is simply a collection of color, material, texture, and a generic shape. The style does not provide exact dimensions or size of the eyeglass frame. The third element is to appropriately **size** the eyeglass frame "style" using the model of the person's face. Note, the "selected eyeglass frame" is NOT sized by the user. The user only provides a *general* shape of the eyeglass. The fourth part is the automatic determination by the system of a shape that is appropriate for the user based on her facial features. The fifth is the interactive modification of the shape by the user, enabled by the system. The resulting style selected by the user, with the appropriate size determined by the system and the appropriate shape determined by the system and interactively modified by the user determined the "selected eyeglass frame."

As stated in Section 2143 of the MPEP:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations.
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> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. Section 2143, MPEP Rev. 2.0, May 2004, pg. 2100-129.

Niether Gao '188 or Fay '201 teach the process of "style selection." The Examiner has improperly cited to Gao '188 in col. 7, lines 5 -13 to show that Gao '188 teaches the claim limitation of "style selection." The cited Gao '188 paragraph is

directed to teaching about reading a SKU number from eyeglass frames and retrieving the image of the eyeglass frames. These eyeglass frames in Gao '188 already have a particular shape and particular style. The user is not allowed to modify the shape of the eyeglass frame. Note that style (color, texture, material), size (inter-ocular distance, maximum width and height of the lens), and shape (the geometric description of the contour of the lenses) are three independent characteristics of the eyeglass frame. One can have the same style in different sizes (e.g. 30mm, 35mm, 40mm wide lens) and in different shapes (e.g. more or less oval, or square). Neither Gao '188 nor Fay '201 teach the automatic selection of size, and the automatic selection of shape.

In the Applicant's "style selection" process, the Applicant's user selects a "style" , which is the combination of material, color, texture, feature decorations, and overall appearance of eyeglasses. See Page 1, line 8 – 9. The "style" selection process is independent of the size of the eyeglasses. Note, the size of the eyeglasses is determined after the model that was generated of the person's face. The glasses are then sized to fit the person's face. Furthermore, the eyeglasses are shaped automatically by the system to fit the user's facial features, and finally the system enables the user to interactively modify the shape of the selected eyeglass frame.

Neither Gao '188 or Fay '201 teach or suggest that there is a distinction between "style" and "shape." Additionally, neither Gao '188 or Fay '201 teaches that the sizing or the shaping of the eyeglass frames being dependent on **combining the user style selection and the model of the person's face.**

In view of the amended independent claim 1, the Applicant contends that the 103 rejections to dependent claims 4-9, 22, 24-25, and 27 that depend on independent claims

1 are moot because the amended independent claim 1 is patently distinguishable from the combination of Gao '188 and Fay '201.

Regarding claims 2 - 3, the Examiner states that Gao '188 and Fay '201 teach the step of determining the position of the eye on the displayed image, but that neither Gao '188 nor Fay '201 disclose the step of utilizing a two-dimensional template to determine a position of eyes on the displayed image and the step of refining the position of the center of the pupils to subpixel precision utilizing template matching. The Examiner further states that Andrew Blake et al., "Active Contours" (hereinafter "Blake"), discloses that correlation matching is used in visual matching and tracking. The Examiner states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teachings of Blake to modify the combined method of Gao '188 and Fay '201 by using a two dimension template to determine the position of eyes on the displayed image and to refine the position of the center of the pupils to subpixel precision in order to practically track the eye position on the image and prevent undesirable effects such as jaggies in static images and twinkling effects in moving ones.

In response to the Examiner's objection, the Applicant submits that neither Gao '188, Fay '201, or Blake teaches the user selection of style and the sizing of the eyeglass frames, which is dependent on combining the user style selection and the model of the person's face. Therefore, in view of the amended independent claim 1, the Applicant contends that the 103 rejections to dependent claims 2 -3, which depend on independent claims 1 are moot because the amended independent claim 1 is patently distinguishable from Gao '188, Fay '201, or Blake.

Regarding claim 10, the Examiner rejected claim 10 under 35 U.S.C. 103(a) as being unpatentable over the combination of Gao '188 and Fay '201 in view of Rafic A.

Bachnak et al ("Backnak"). The Examiner states that Fay '201 discloses generating a three-dimensional image of a customer's face using a three-dimensional camera or using two cameras with a known distance apart by taking simultaneous digital photographs, but that neither Gao '188 nor Fay '201 discloses the step of estimating the epipolar geometry of the configuration of the cameras. The Examiner states that Bachnak discloses a method and apparatus to generate a three-dimensional image of a scene from stereo images generated from two cameras, depending greatly on a successful matching process.

In response to the Examiner's objection, the Applicant submits that neither Gao '188, Fay '201, or Bachnak teaches the user selection of eyeglass frame "style" and the sizing of the eyeglass frames being dependent on combining the user style selection and the model of the person's face. In view of the amended independent claim 1, the Applicant contends that rejection to dependent claims 10 is moot because the amended independent claim 1 is patently distinguishable from Gao '188, Fay '201, or Bachnak.

Regarding claims 16-17, and 19, the Examiner rejected these claims under 35 USC 103(a) as being unpatentable over the combination of Gao '188 and Fay '201 and further in view of Fujie et al., U.S. Patent 5,576,778 (hereinafter "Fujie '778").

In response to the Examiner's objection, the Applicant submits that neither Gao '188, Fay '201, or Fujie '778 teaches the user selection of eyeglass frame "style" and the sizing of the eyeglass frames being dependent on combining the user style selection and the model of the person's face. In particular, neither Gao '188, nor Fay '201 nor Fujie '778 teaches the interactive modification of the selected eyeglass frame. For example, the geometry of the eyeglass frame is manipulated by moving the control points that determine the shape of the lens, or by manipulating perceptual characteristics that are then automatically converted into geometric parameters by the system. In view of the

amended independent claim 1, the Applicant contends that rejections to dependent claim 16, 17 and 19 is moot because the amended independent claim 1 is patently distinguishable from Gao '188, Fay '201, or Fujie '778.

Regarding claims 28-30, the Examiner rejects these under 35 USC 103(a) as being unpatentable over the combination of Gao '188 and Fay '201 in further view of M.C. Burl (hereinafter "Burl"). In response to the Examiner's objection, the Applicant submits that neither Gao '188, Fay '201, or Burl teaches the user selection of eyeglass frame "style" and the sizing and shaping of the eyeglass frames being dependent on combining the user style selection and the model of the person's face. In view of the amended independent claim 1, the Applicant contends that rejections to dependent claim 16, 17 and 19 is moot because the amended independent claim 1 is patently distinguishable from Gao '188, Fay '201, or Burl.

The Examiner then states that claims "11-12, 13-15, 18, 20-21, 23, 26, 31, 31" would be allowable if rewritten to overcome the objections and rejection(s) under 35 U.S.C. 112, second paragraph, set forth in the Office Action, and to include all of the limitations of the base claim and any intervening claims. In response to this paragraph, applicant notes that claim 31 has been repeated twice, but claim 32 is not mentioned; therefore, applicant has assumed that this is a typographical error, and the Examiner meant claims, "11-12, 13-15, 18, 20-21, 23, 26, 31, 32."

The Applicant has not resubmitted claims 11-12, 13-15, 18, 20-21, 23, 26, 31, and 32 because of the revised independent claim 1 and because of the apparent confusion in the Examiner's action. In view of the arguments provided above, the Applicant contends all the claims are in a state of allowance.

E. Conclusion

For all the foregoing reasons, allowance of claims 1-20 pending in the present application are respectfully requested.

Respectfully Submitted;

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